OIPE JC177
JUN 04 2004
PATENT & TRADEMARK OFFICE



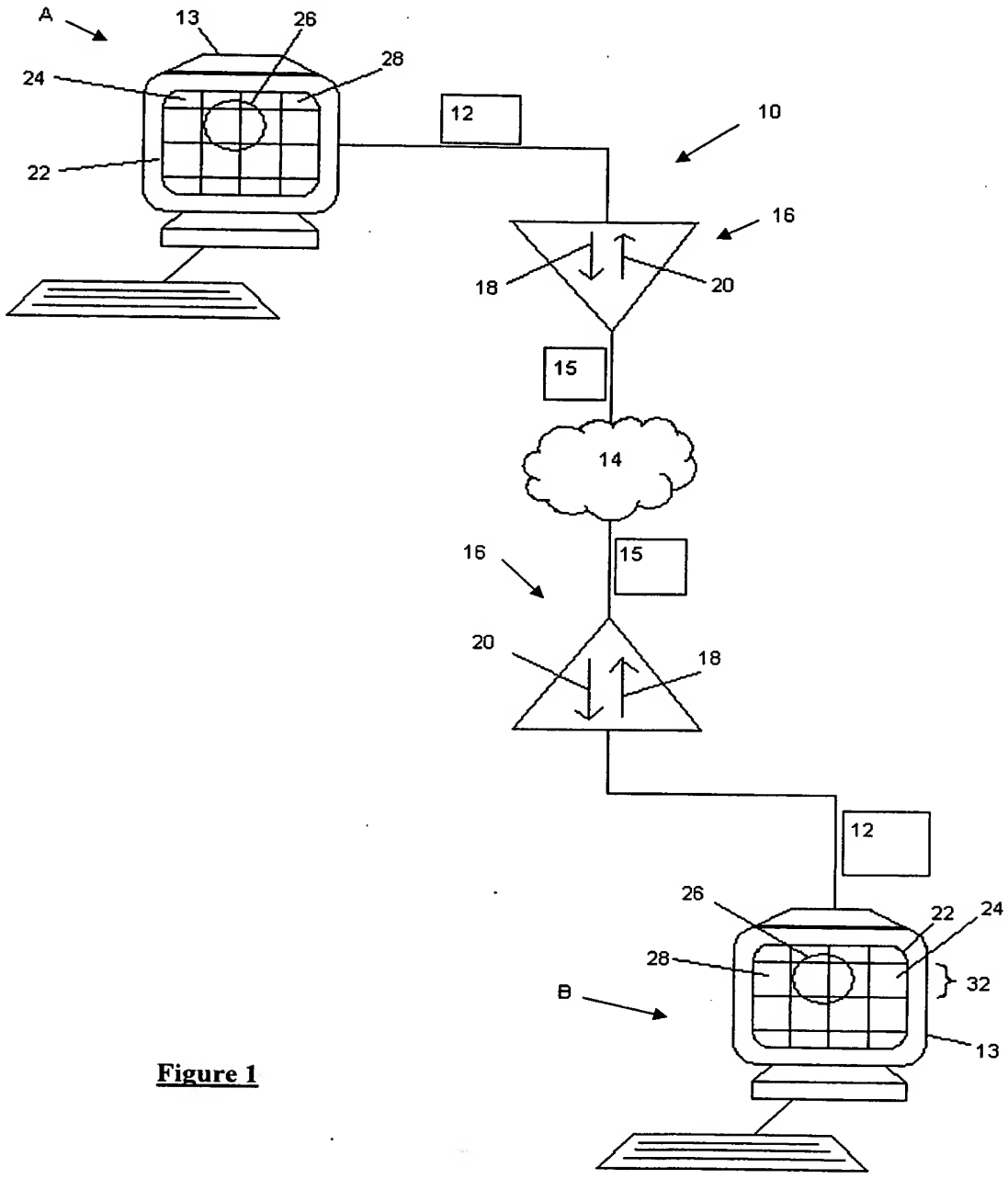



**Figure 1**

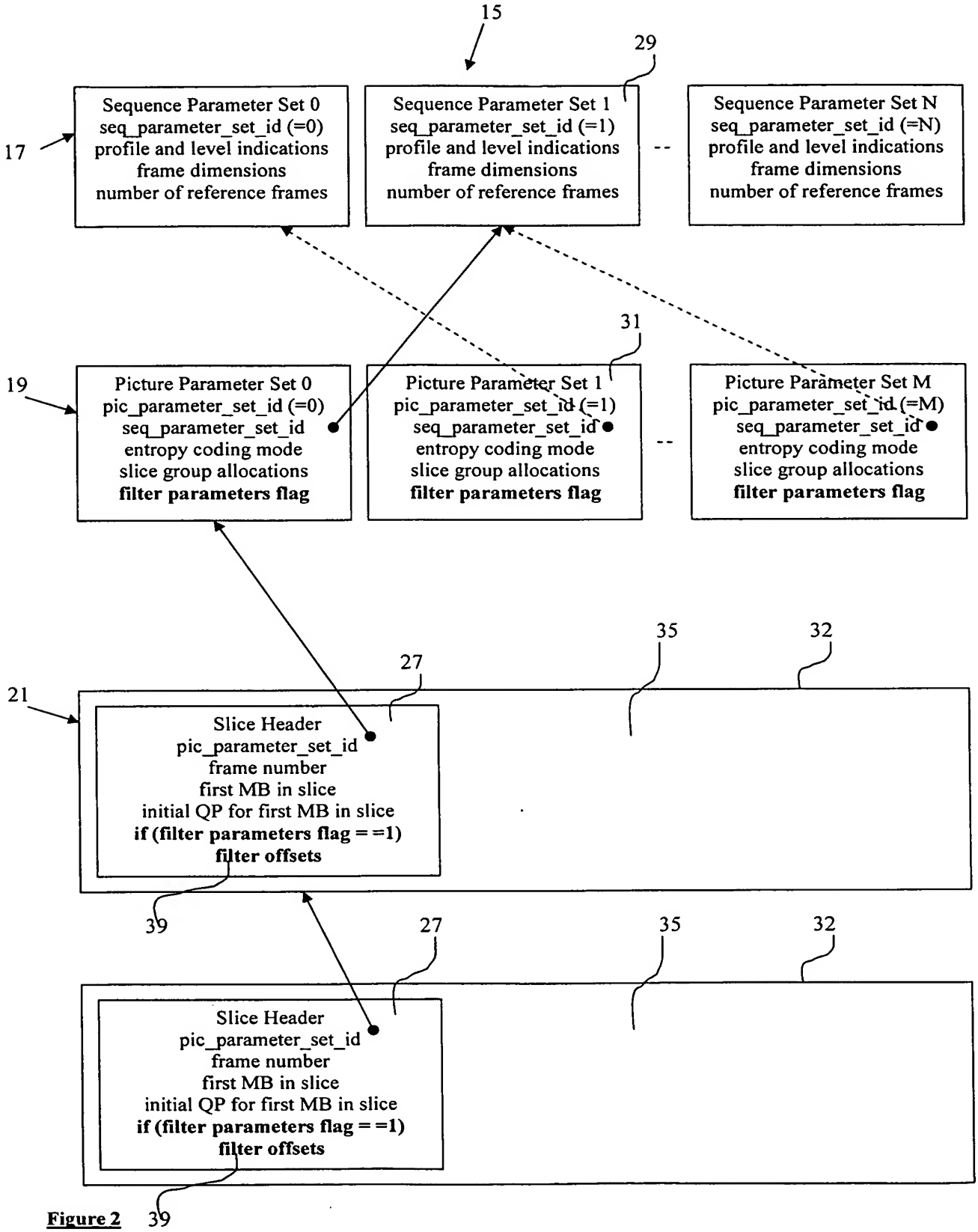

15
29
17
Sequence Parameter Set 0
seq_parameter_set_id (=0)
profile and level indications
frame dimensions
number of reference frames
Sequence Parameter Set 1
seq_parameter_set_id (=1)
profile and level indications
frame dimensions
number of reference frames
Sequence Parameter Set N
seq_parameter_set_id (=N)
profile and level indications
frame dimensions
number of reference frames
31
19
Picture Parameter Set 0
pic_parameter_set_id (=0)
seq_parameter_set_id
entropy coding mode
slice group allocations
filter parameters flag
Picture Parameter Set 1
pic_parameter_set_id (=1)
seq_parameter_set_id
entropy coding mode
slice group allocations
filter parameters flag
Picture Parameter Set M
pic_parameter_set_id (=M)
seq_parameter_set_id
entropy coding mode
slice group allocations
filter parameters flag
35
32
27
21
Slice Header
pic_parameter_set_id
frame number
first MB in slice
initial QP for first MB in slice
if (filter parameters flag = =1)
filter offsets
39
27
35
32
Slice Header
pic_parameter_set_id
frame number
first MB in slice
initial QP for first MB in slice
if (filter parameters flag = =1)
filter offsets
39

**Figure 2**

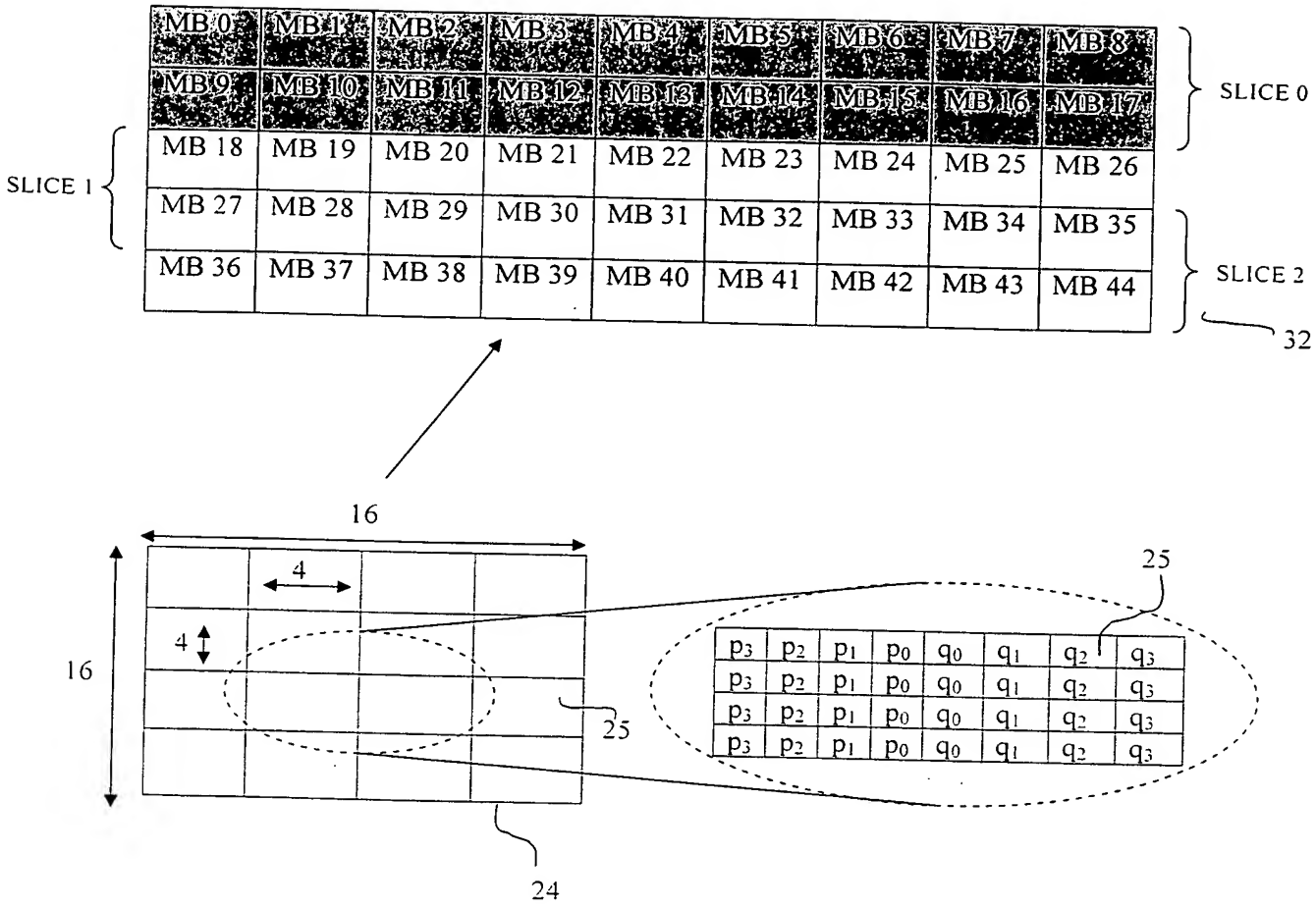

MB 0
MB 1
MB 2
MB 3
MB 4
MB 5
MB 6
MB 7
MB 8
MB 9
MB 10
MB 11
MB 12
MB 13
MB 14
MB 15
MB 16
MB 17
MB 18
MB 19
MB 20
MB 21
MB 22
MB 23
MB 24
MB 25
MB 26
MB 27
MB 28
MB 29
MB 30
MB 31
MB 32
MB 33
MB 34
MB 35
MB 36
MB 37
MB 38
MB 39
MB 40
MB 41
MB 42
MB 43
MB 44
SLICE 0
SLICE 1
SLICE 2
32
16
4
4
16
25
24
25
p3 p2 p1 p0 q0 q1 q2 q3
p3 p2 p1 p0 q0 q1 q2 q3
p3 p2 p1 p0 q0 q1 q2 q3
p3 p2 p1 p0 q0 q1 q2 q3

**Figure 3**

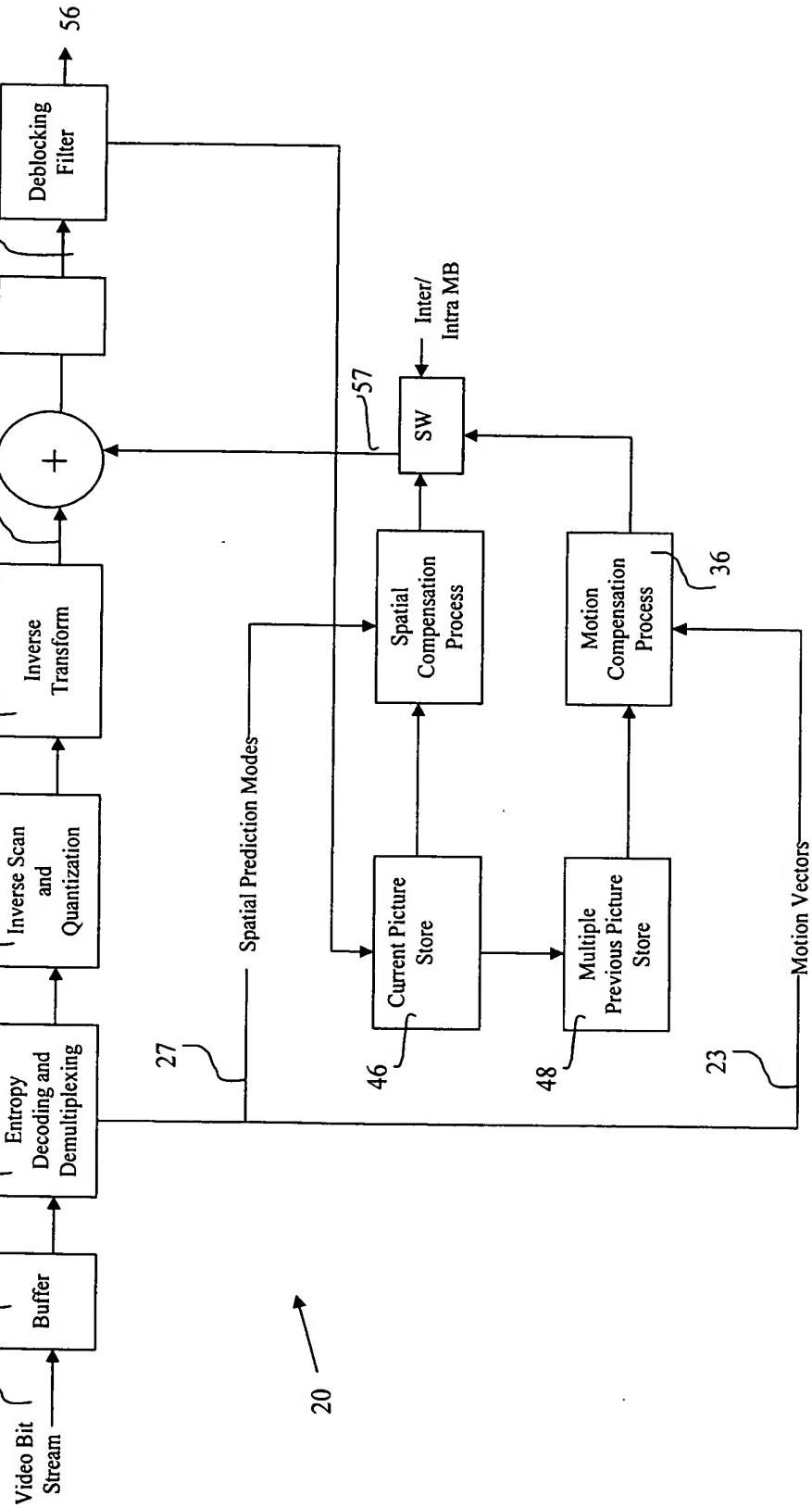
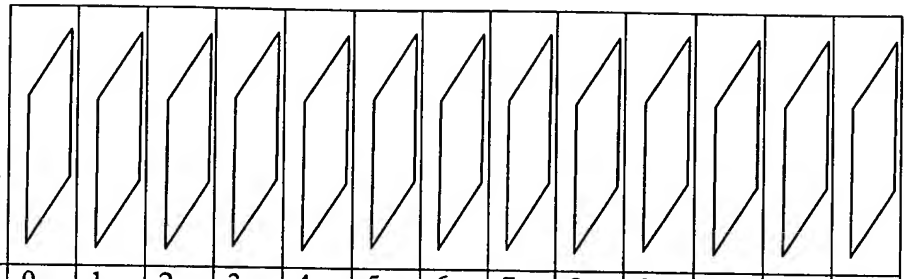

Video Bit Stream
15
Buffer
33
Entropy Decoding and Demultiplexing
34
Inverse Scan and Quantization
38
Inverse Transform
40
42
54
59
55
Deblocking Filter
44
56
20
27
Spatial Prediction Modes
Current Picture Store
46
Multiple Previous Picture Store
48
23
Motion Vectors
Spatial Compensation Process
Motion Compensation Process
36
SW
57
Inter/ Intra MB

Figure 4



| Picture Display Number | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| List 0 Reference Index | 2 | - | - | 1 | - | - | 0 | - | - | 3 | - | - | 4 |
| List 1 Reference Index | 4 | - | - | 3 | - | - | 2 | - | - | 0 | - | - | 1 |

**Figure 5**

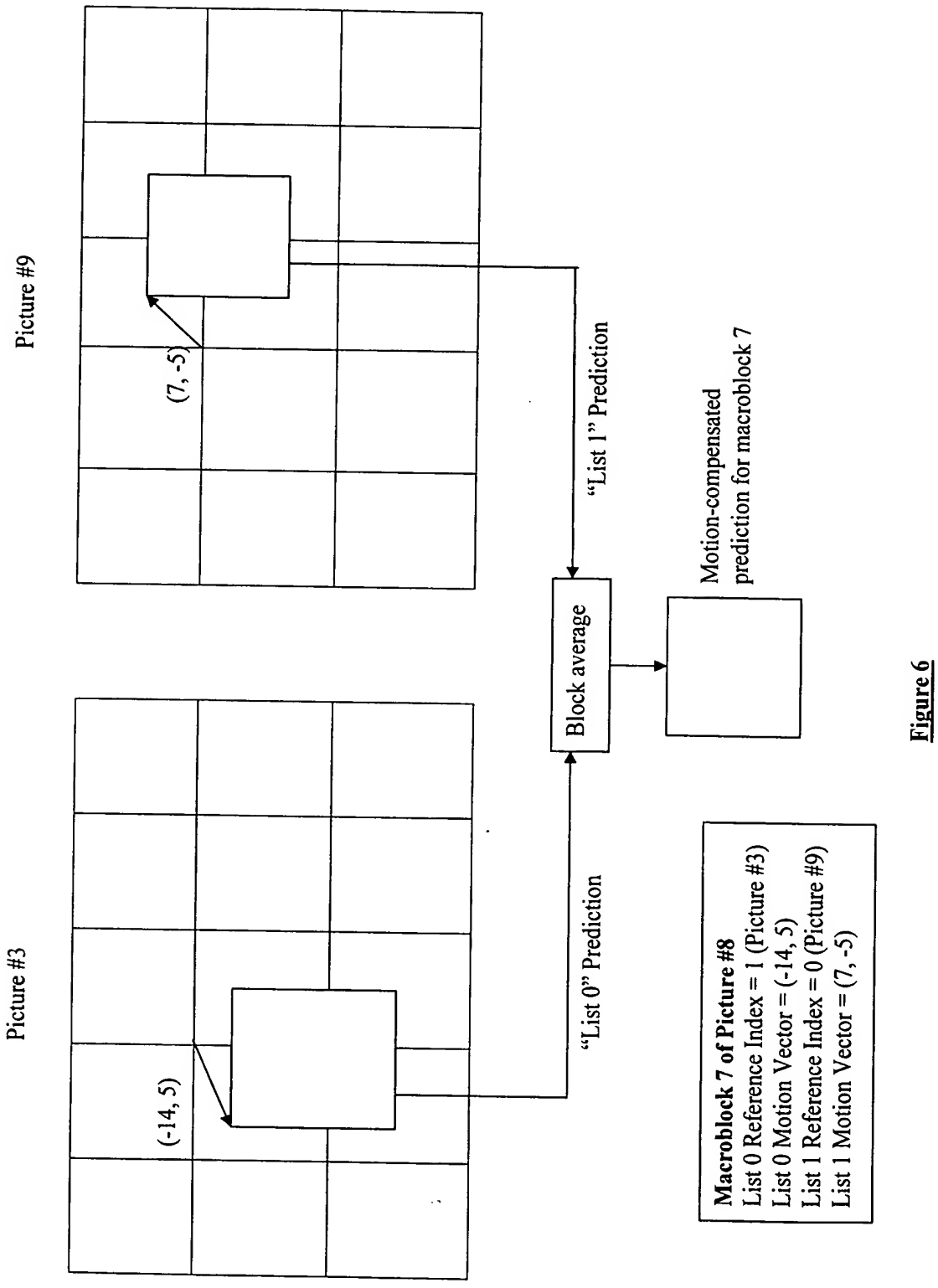

Picture #9
(7, -5)
"List 1" Prediction
Motion-compensated
prediction for macroblock 7
Block average
Picture #3
(-14, 5)
"List 0" Prediction
Macroblock 7 of Picture #8
List 0 Reference Index = 1 (Picture #3)
List 0 Motion Vector = (-14, 5)
List 1 Reference Index = 0 (Picture #9)
List 1 Motion Vector = (7, -5)

Figure 6

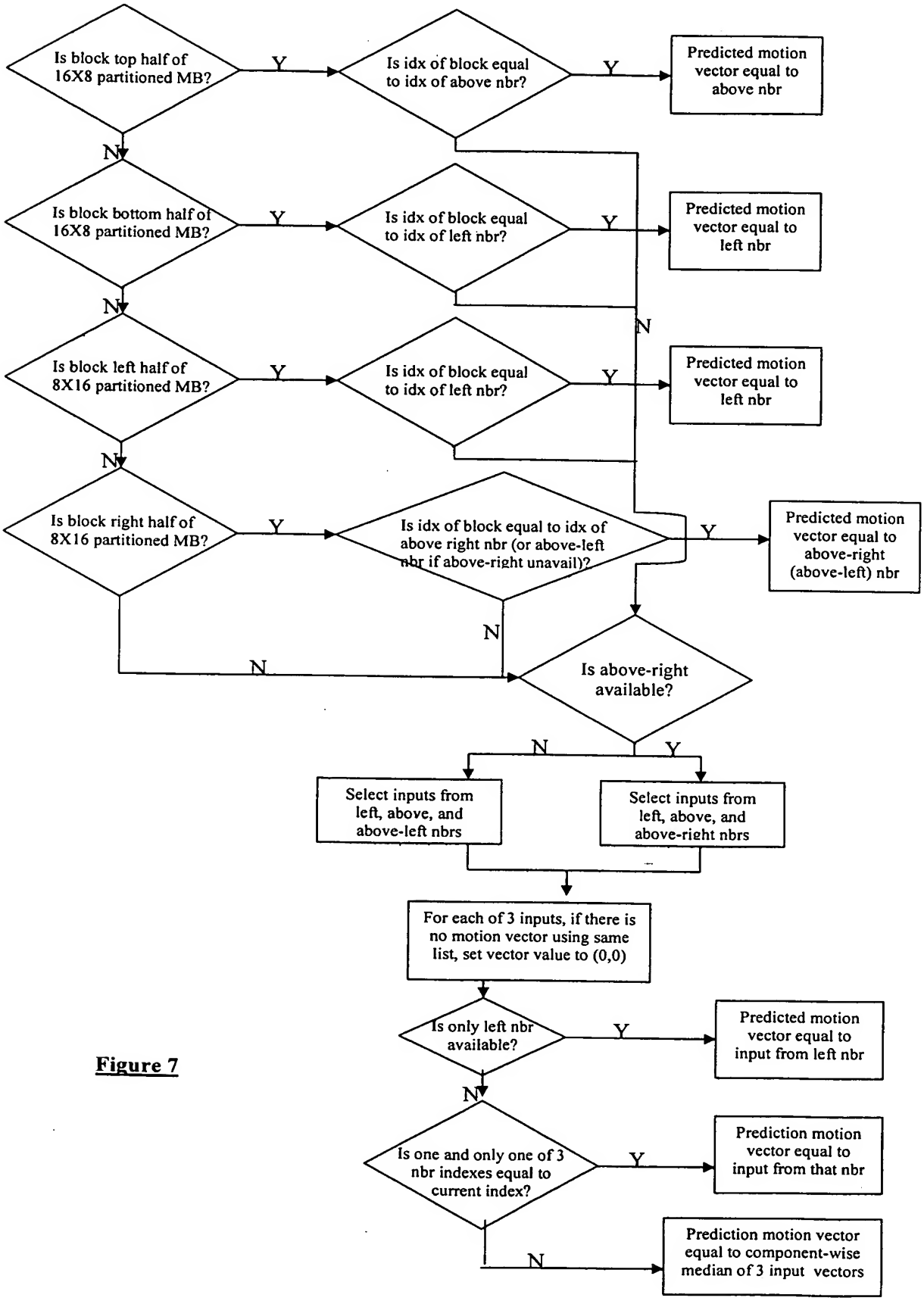

Is block top half of 16X8 partitioned MB?
Y
Is idx of block equal to idx of above nbr?
Y
Predicted motion vector equal to above nbr
N
Is block bottom half of 16X8 partitioned MB?
Y
Is idx of block equal to idx of left nbr?
Y
Predicted motion vector equal to left nbr
N
Is block left half of 8X16 partitioned MB?
Y
Is idx of block equal to idx of left nbr?
Y
Predicted motion vector equal to left nbr
N
Is block right half of 8X16 partitioned MB?
Y
Is idx of block equal to idx of above right nbr (or above-left nbr if above-right unavail)?
Y
Predicted motion vector equal to above-right (above-left) nbr
N
N
Is above-right available?
N
Y
Select inputs from left, above, and above-left nbrs
Select inputs from left, above, and above-right nbrs
For each of 3 inputs, if there is no motion vector using same list, set vector value to (0,0)
Is only left nbr available?
Y
Predicted motion vector equal to input from left nbr
N
Is one and only one of 3 nbr indexes equal to current index?
Y
Prediction motion vector equal to input from that nbr
N
Prediction motion vector equal to component-wise median of 3 input vectors

**Figure 7**